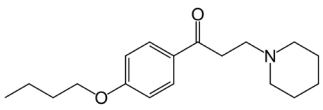
Dyclonine HCl

An analysis of a local anesthetic using Reversed Phase HPLC



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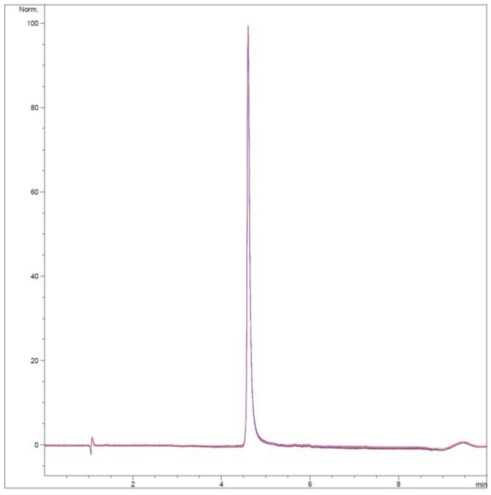

Figure 1.

Notes: Dyclonine is a local anesthetic and is the active ingredient in an over-the-counter throat lozenge. By binding to the activated sodium channels on the neuronal membrane, it decreases the membrane's permeability to sodium ions. This induces an increased threshold of excitations and subsequently blocks conduction, leading to a reversible loss of sensation. The drug is classified as a bactericidal and fungicidal local anesthetic. It has already become an important drug in the treatment of pain and as an antipruritic agent. Newest studies show that dyclonine represents a novel therapeutic route for Friedreich's ataxia, a devastating disease leading to neurodegeneration and lethal cardiomyopathy.

Method Conditions

Column: **Cogent Phenyl Hydride™**, 4µm, 100Å

Catalog No.: 69020-75P

Dimensions: 4.6 x 75 mm

Solvents: A: DI H_2O/ 0.1% Formic Acid (v/v)
B: Acetonitrile/ 0.1% Formic Acid (v/v)

Gradient:

time (min.)	%B
0	10
1	10
5	70
7	70
7.5	10
10	10

Injection vol.: 2µL

Flow rate: 1.0 mL/min

Detection: UV 270 nm

Sample: 0.1 mg/mL Dyclonine HCl reference standard solution in 50% Acetonitrile/ 50% DI H_2O + 0.1% formic acid.
Figure 1: 20 injections of Dyclonine HCl in overlay

Discussion

Using the Cogent Phenyl Hydride column, a rapid, sensitive, and reproducible method has been developed for detection of dyclonine HCl. The presented data (overlay of 20 injections) illustrates how the compound can be adequately retained and detected using HPLC with both excellent peak shape and run-to-run precision using a simple gradient in reversed-phase HPLC. The developed HPLC method involves using a Cogent phenyl column, which was selected based on the structure of the analyzed compound. A phenyl ring in the column material provided beneficial π-π interaction with the analyte making possible the use of a very simple, MS friendly mobile phase with formic acid as an additive. The process of sample preparation was simple and the analysis time was around 4 min. If shorter analysis time is required, this can be achieved by a simple change in gradient conditions.

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